Sin Agua, No Huy Vida

("Without Water, There is No Life")

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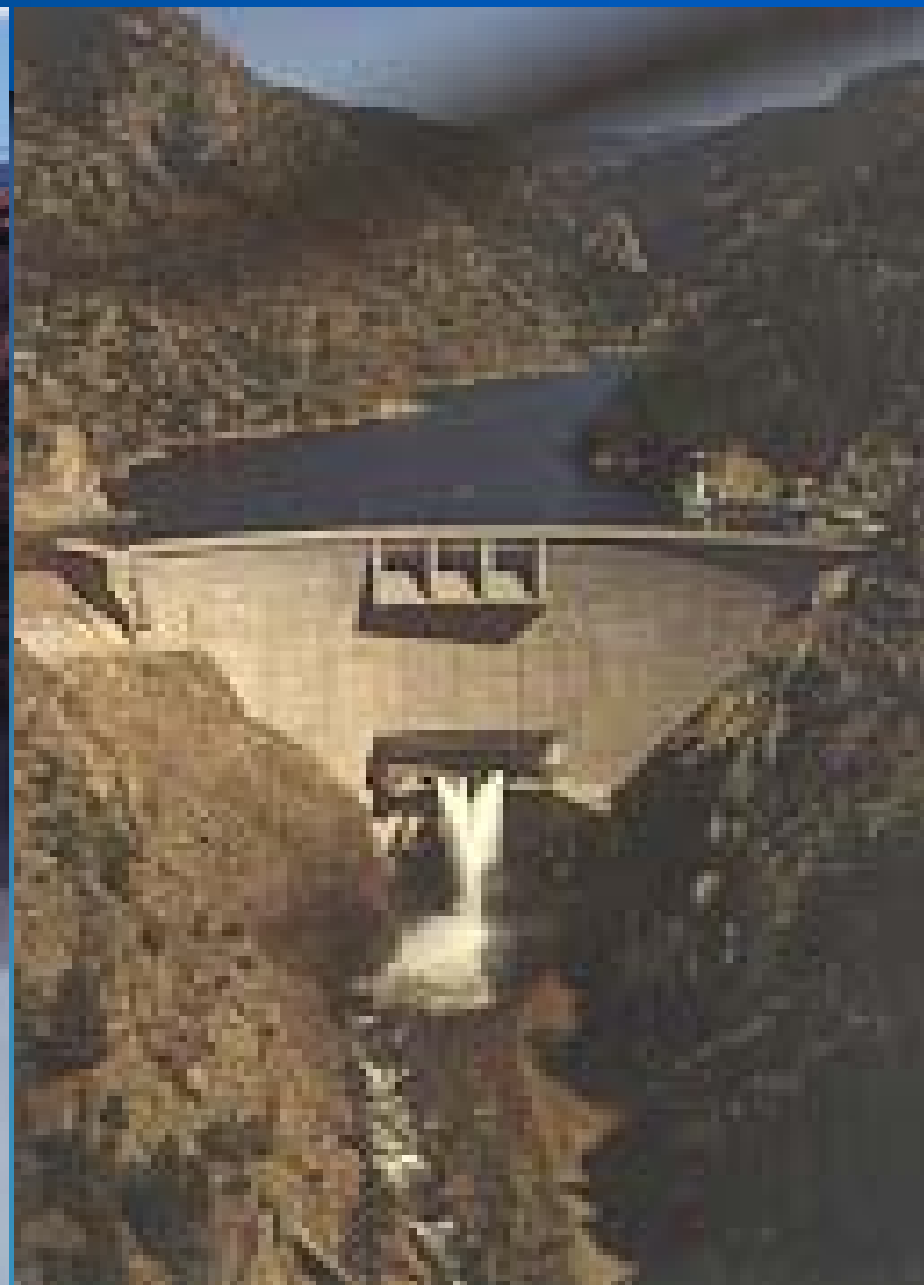
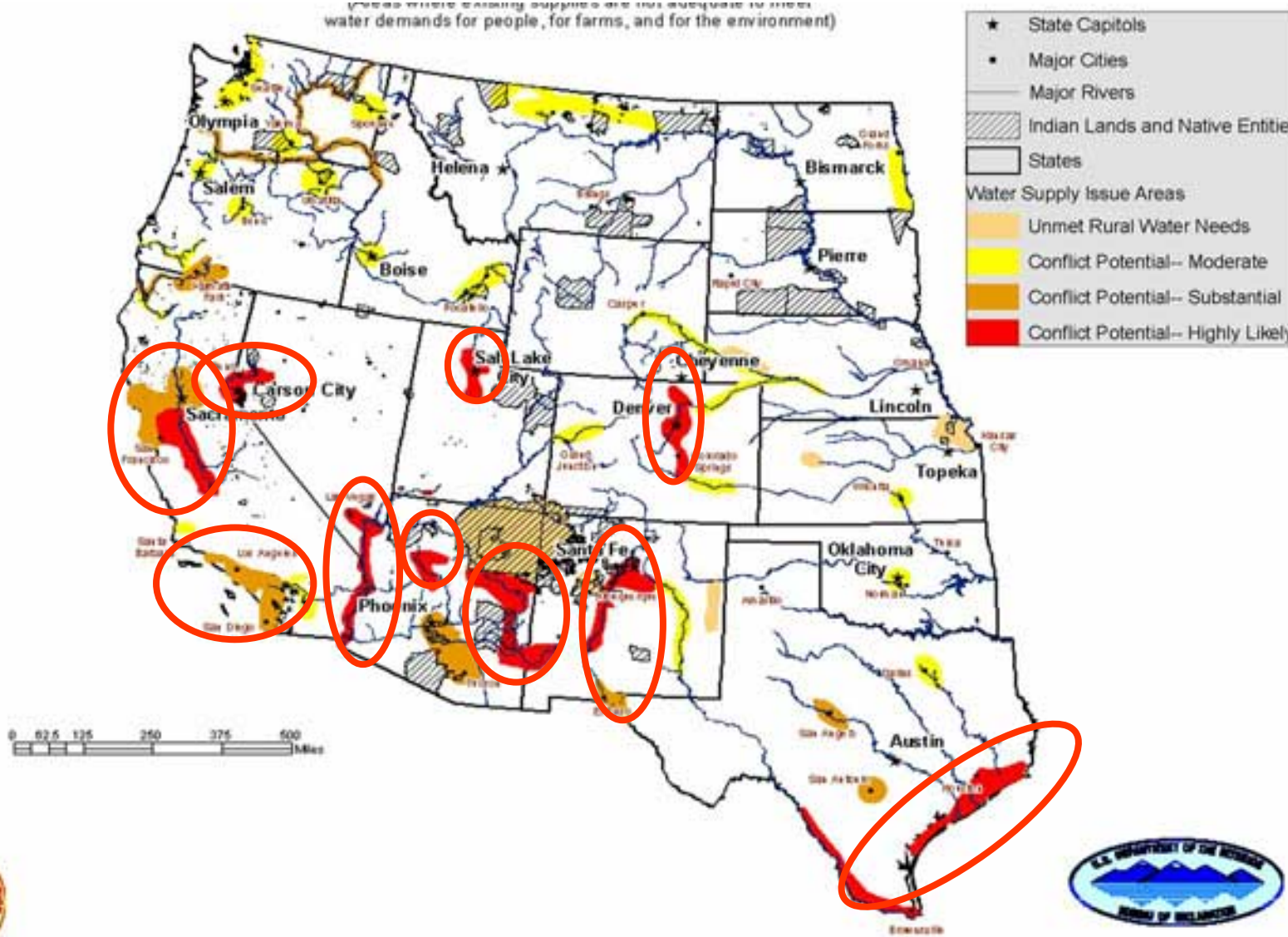
The “New West” Meets The “Old West”

How Do Existing Icons of the West Evolve?



A QUANTUM CHANGE - ***"How Will Public Policy and Water Management Adapt to Increasing Populations, Economic Well-Being, Water Scarcity, Sustaining Agriculture, Environmental Protection in the Coming Decades?"***

Areas of Substantial/ Highly Likely Water Supply Conflict - 2025

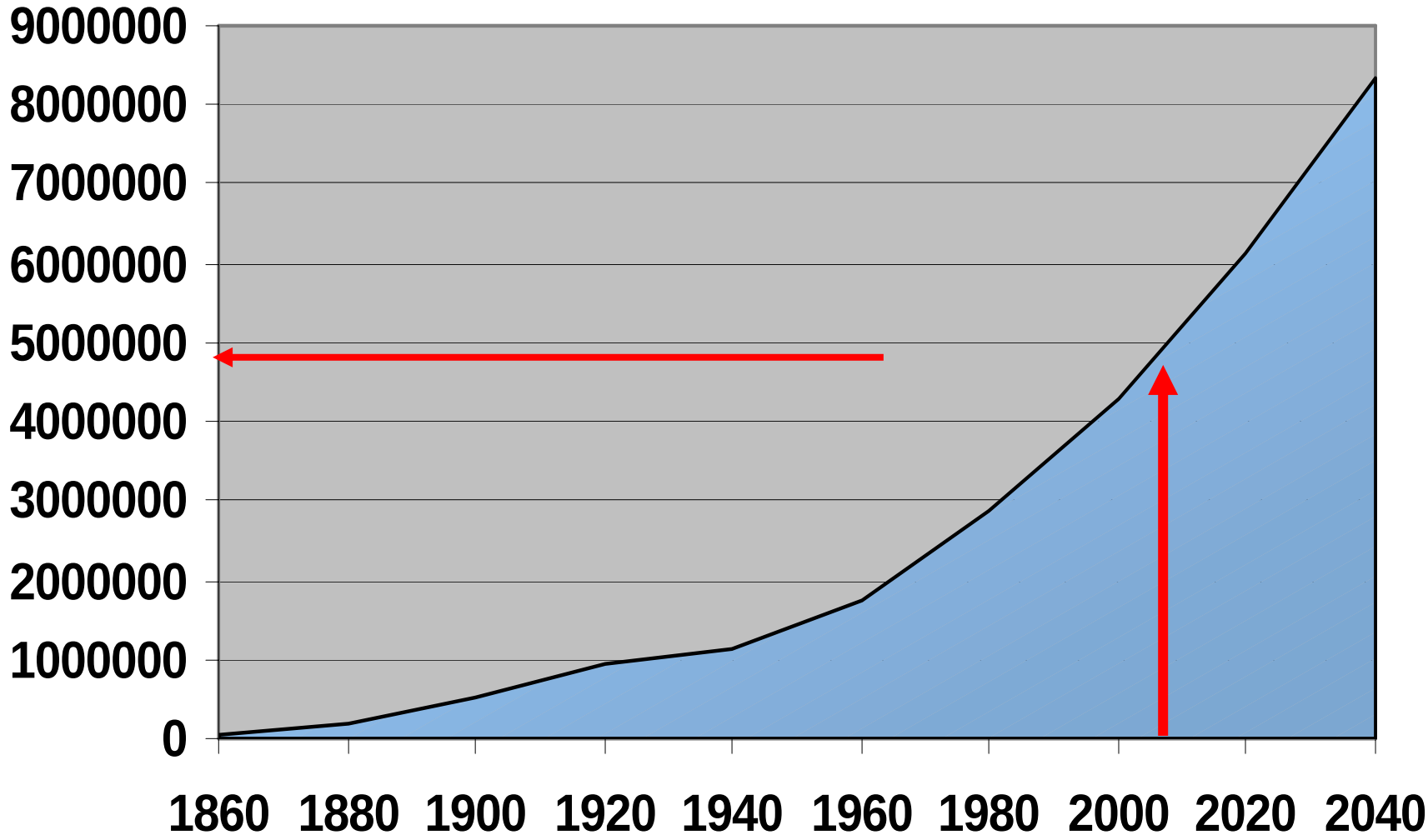


May 2003

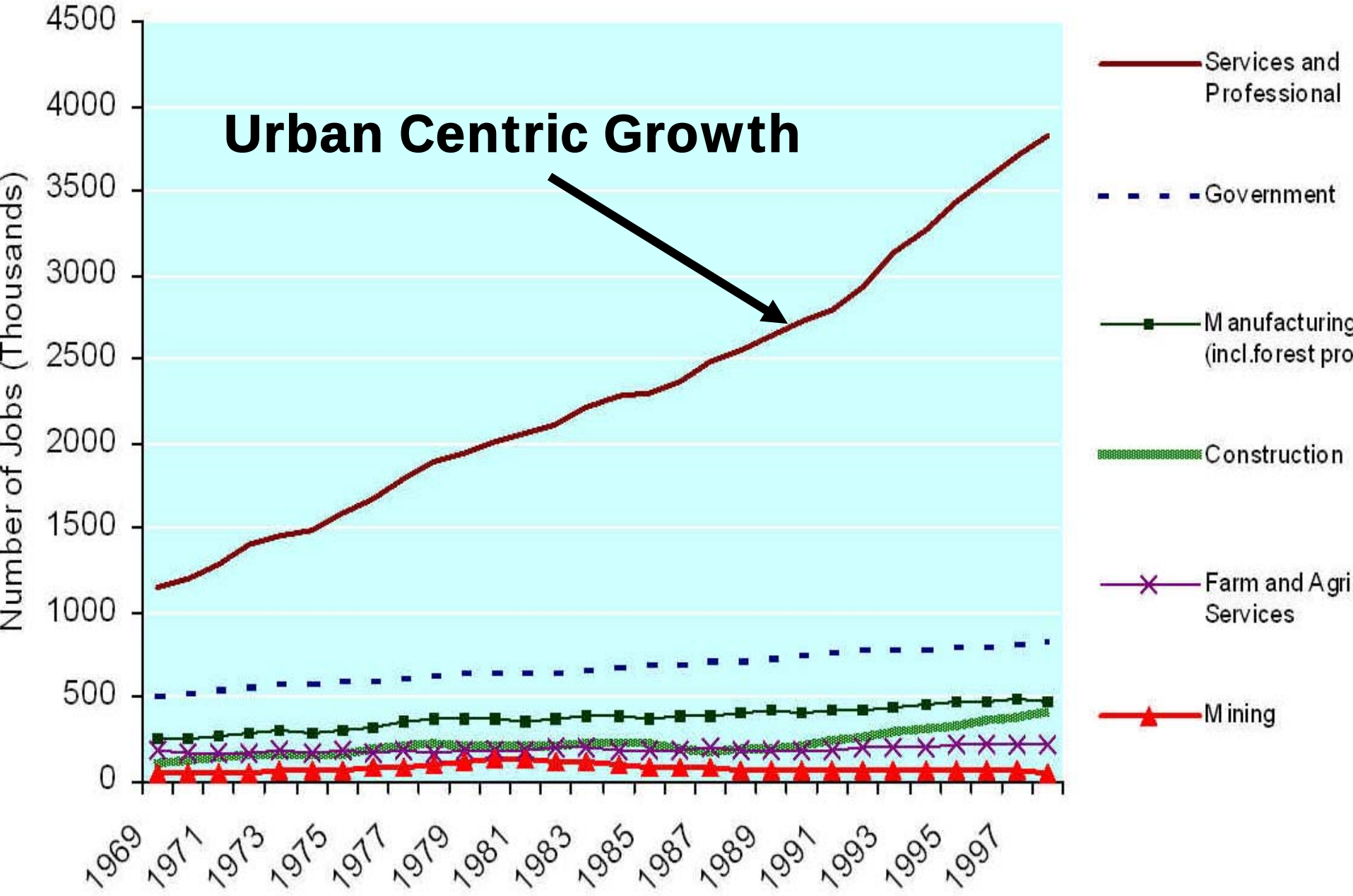
What is Causing The Water Crisis?

- Population growth
- Urban-centric economies versus agrarian economies
- Allocation of water based on “first in time, first in right”
- Dedication of water to non-consumptive recreational and environmental protection uses
- A public policy forum for water resource management in a highly regulated, byzantine development cycle
- Little unused water in hydrologic cycle requires a re-allocation of historic uses and demand patterns to meet future uses
- Existing infrastructure capacity is exceeded and has not developed with increasing demands
- A presumption that clean, safe, affordable (cheap) water for human consumption is a right not a commodity
- Future communities, land use planning and water governance will have to adapt to these realities

Colorado's Population Growth



Employment


Urban Centric Growth
Number of Jobs (Thousands)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
Services and Professional
Government
Manufacturing (incl.forest pro
Construction
Farm and Agri Services
Mining

How Does Colorado Currently Use Water?

- 90% Agriculture *(mostly forage crops)*

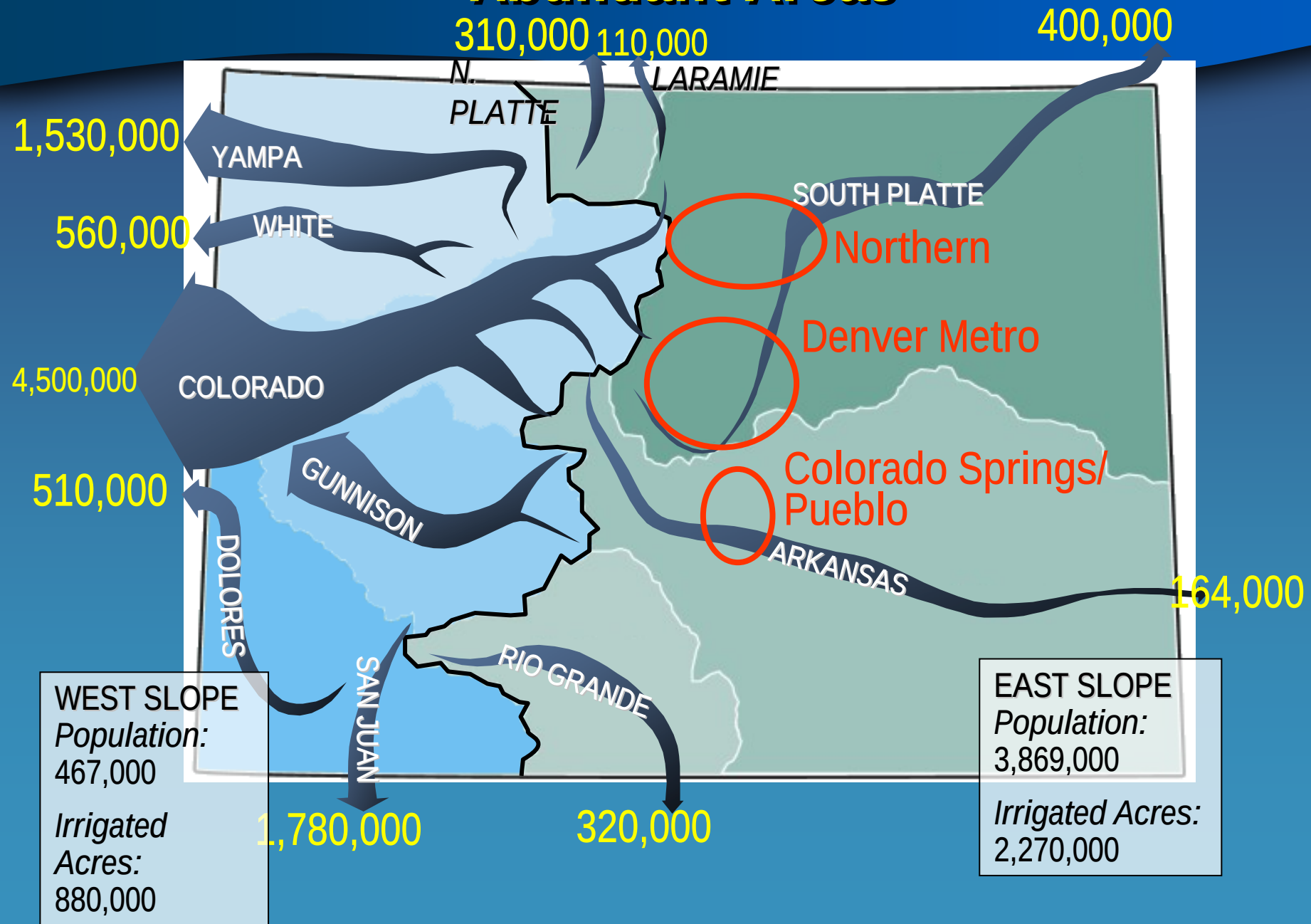
- 4% Municipal *(8% by Year 2030)*

- Water Diverted
- 3,300,000 AF – Corn Feed
- 3,000,000 AF – Other Crops
- 3,000,000 AF – Alfalfa Hay
- 2,700,000 AF – Pastureland
- 2,300,000 AF – Other Hay
- *800,000 AF – All other diverters including all cities and towns*
- *6,000,000 AF – Interstate Compacts For Delivery to Downstream States*

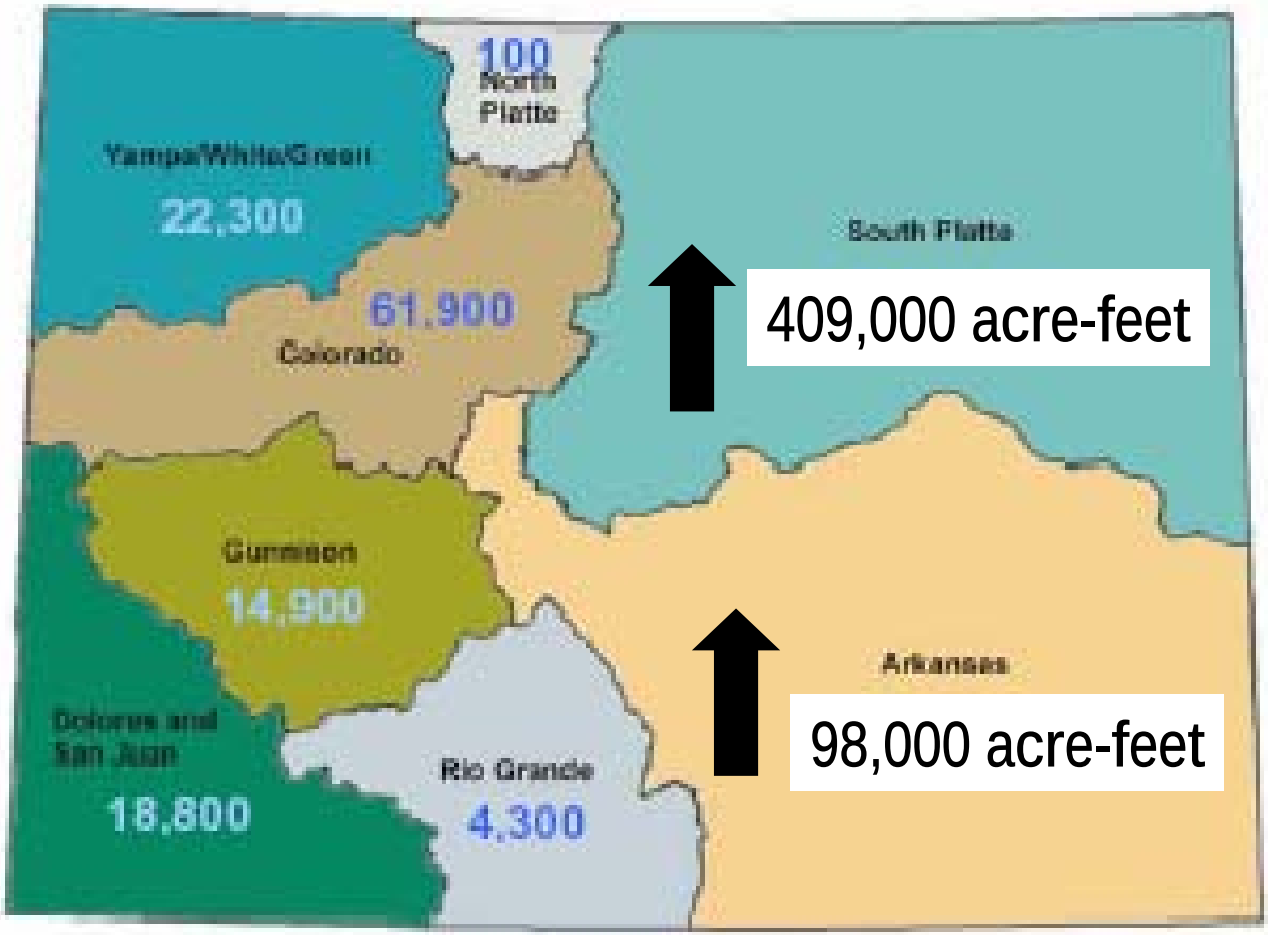
- Water Consumed
- 1,270,000 AF – Corn Feed
- 1,200,000 AF – Other Crops
- 1,200,000 AF – Alfalfa Hay
- 1,050,000 AF – Pastureland
- 900,000 AF – Other Hay
- *400,000 AF – All Other consumers including all cities and towns*
- *0 AF – Interstate Compacts for Delivery to Downstream States*

Community Planning Is Independent of Dependable Water Supply Development

Evolving Municipal Demands Are Not in Water Abundant Areas



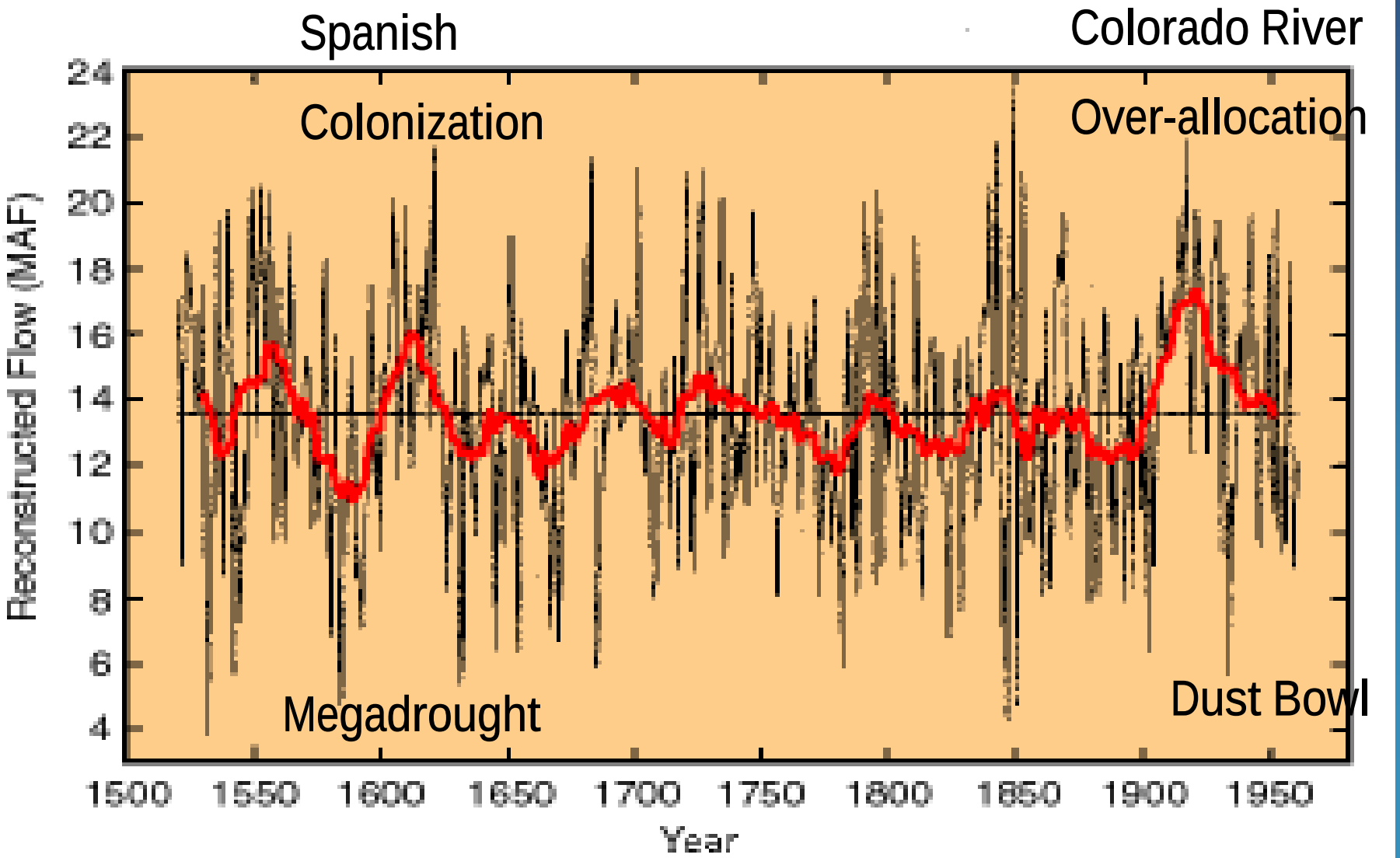
Increased Municipal Water Demands (2030)



Colorado's eight major river basins and the expected increase in gross M&I water use in acre-feet per year by the year 2030.

Droughts Limit The Amount of Water Available to Serve Our Communities And Support the Environment

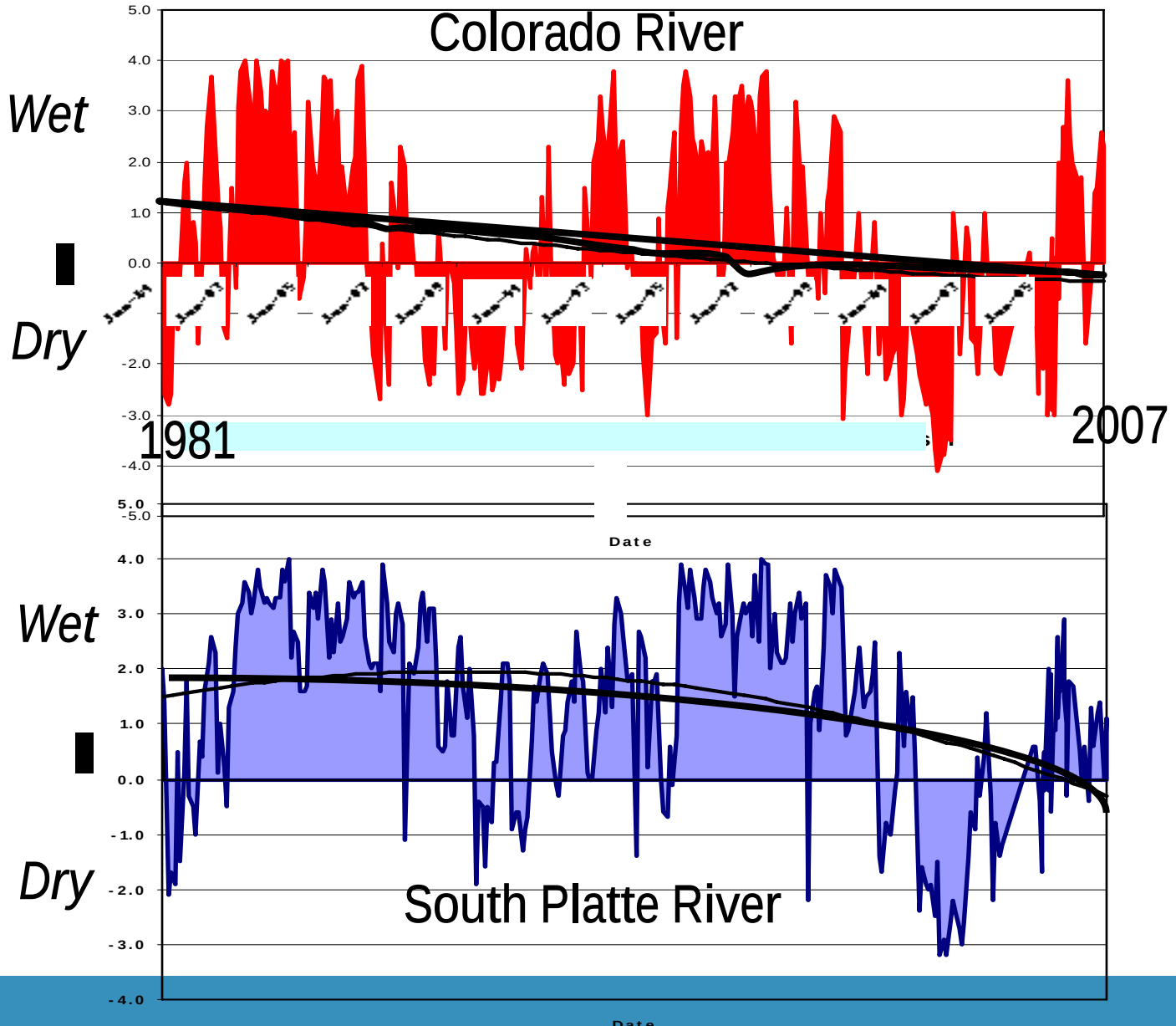
The Climate Cassandra



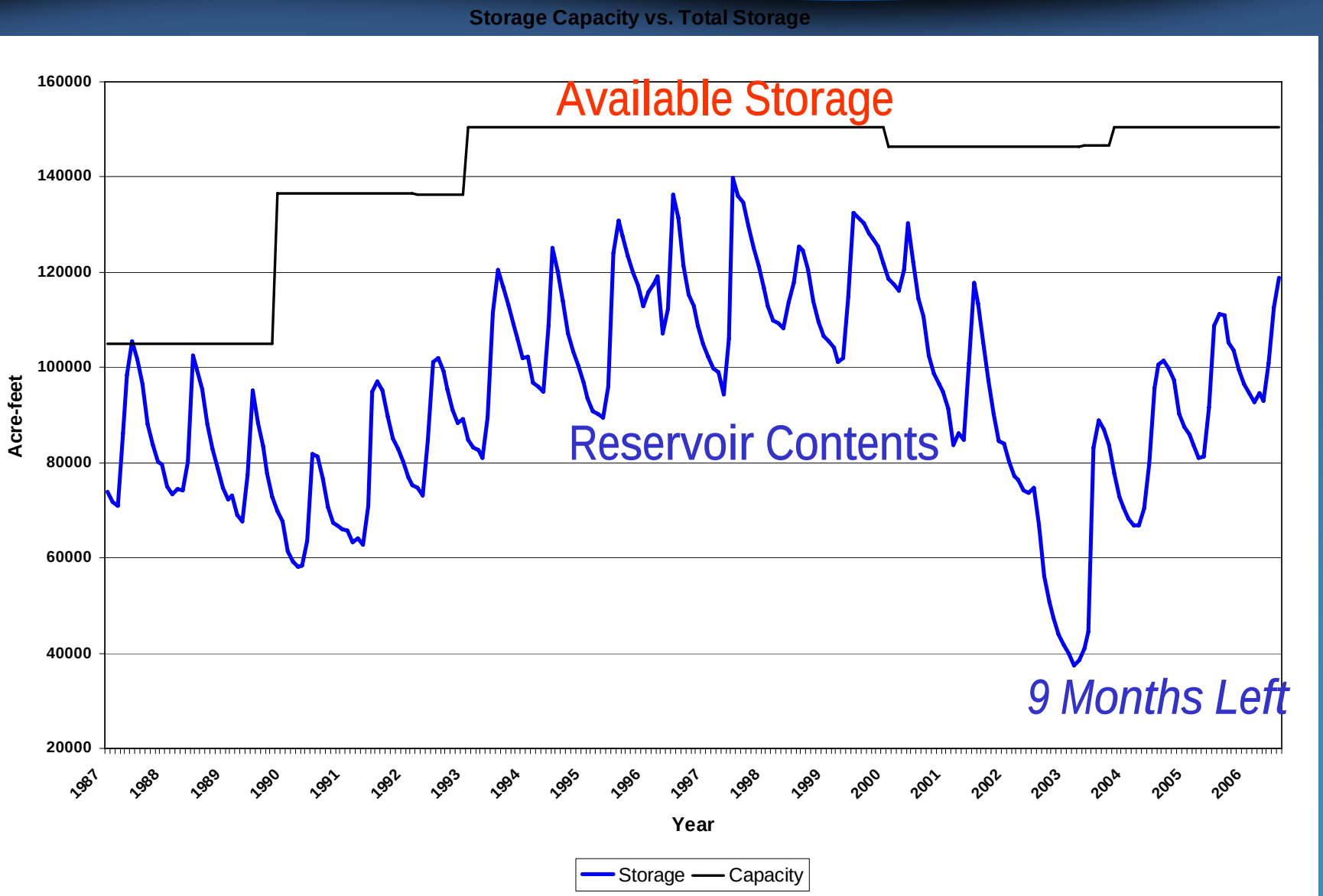
Lake Powell/ Lake Mead Will Be More Frequently Over-Stressed

Key Watersheds are Drier

Historical Surface Water Supply Index, Colorado River Basin



How Do We Know Cities Need More Reliable Water Supplies? – They Drain Their Reservoirs



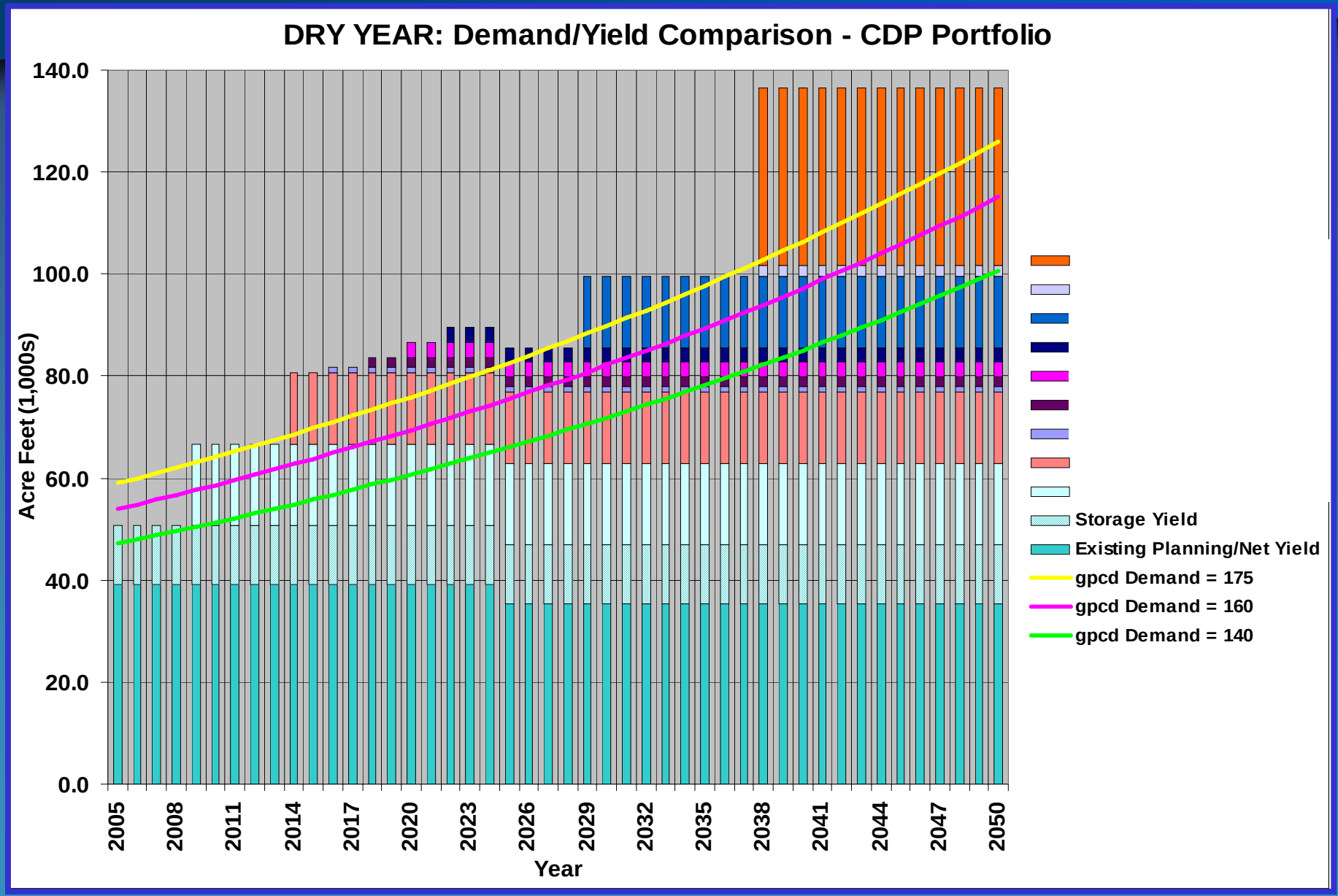
Streams, Reservoirs Are Affected by Drought

South Platte, August 2002

Green Mountain Reservoir, July 2003

Communities Must Locate, Develop and Deliver New Sources of Water to Provide a Reliable Level of Service for Current and Future Residents and Businesses

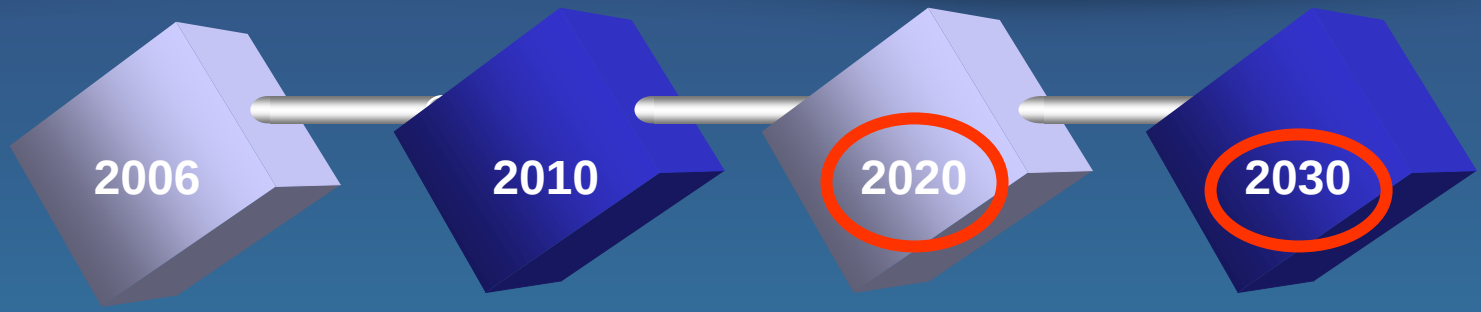
Aurora's Integrated Water Resource Plan



How Will Cities Acquire Needed Water Supplies?

- Water Conservation
- Use Reclaimed Water For Parks / Golf Courses
- Recapture Reusable Return Flows
- Acquire and Transfer Water From Existing Agricultural Uses:
  - **Lease During Droughts**
  - **Purchase and Dry-Up Farmlands**
  - **Increase Agricultural Efficiency/ Transfer Savings**
  - **Rotational Crop Management**
  - **Purchase and Leaseback for Certain Times**
- Develop New Sources of Water From Trans-Basin Diversions
- Build Reservoirs and Pipes/ Treatment Plants
- System Integration and Regional Efficiency

Adaptive Management Practices Balancing Demand Management and Supply Projects



- •Wetter
- •Demand Management
- •Aquifer Mining
- •Over-drafting
- •Indirect Use
- •Ag Leasing /Interruptible Supplies

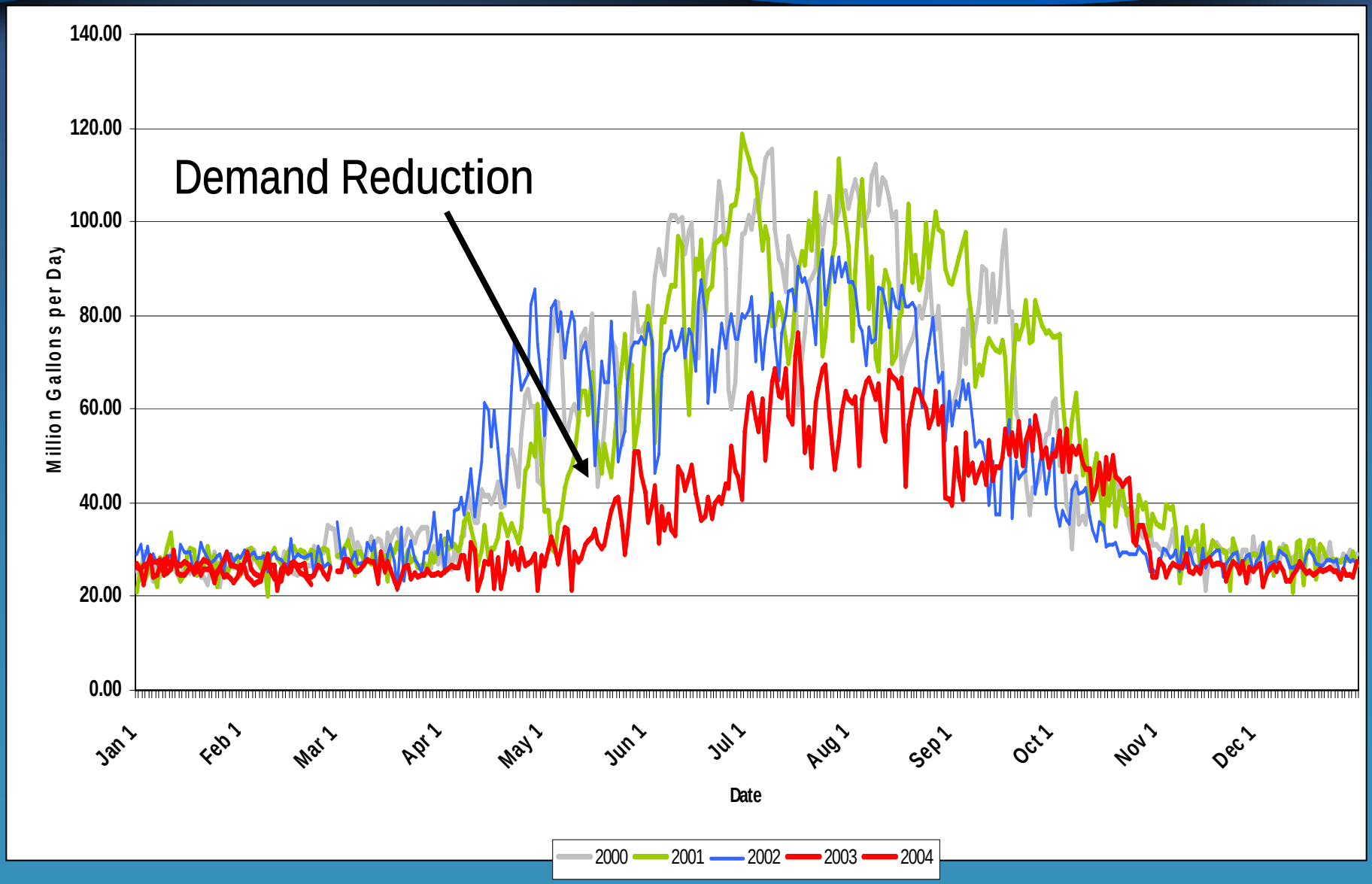
- •Wetter
- •Demand Management
- •Aquifer Mining
- •Over-drafting
- •Planned Indirect Use /Maximization of Local Water
- •Ag Leasing/ Interruptible

- •Y2010 +
- •Small Trans-basin
- •Limited Ag Transfers
- •Public Benefit Multi-Purpose

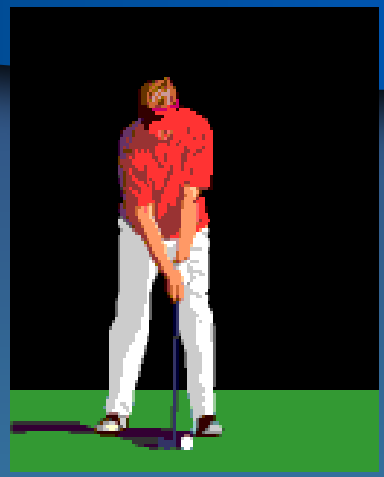
- •Y2020 +
- •One or Two Regional Trans-basin Projects
- •System Integration
- •Expanded Re-allocation of Ag Uses
- •Planned Indirect Potable Projects

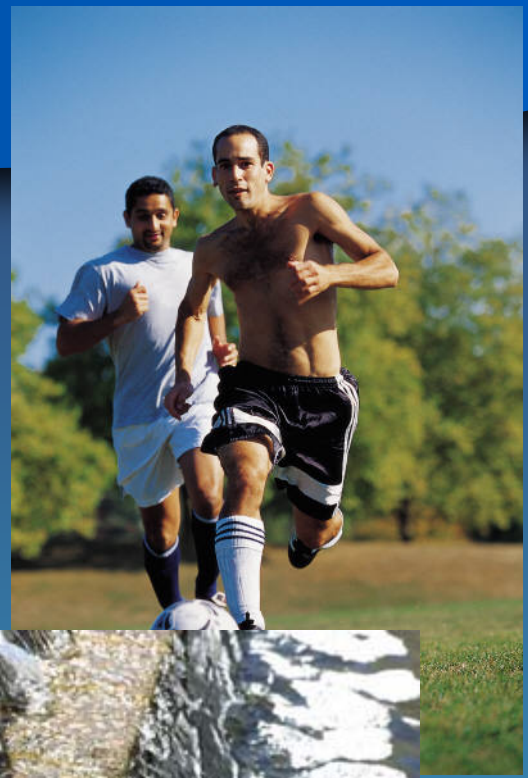
Straw – Lite, Blue Mesa, Green Mountain, Arkansas Pumpback,
S Platte Pumpback, Other Major Structural Project (?)

Water Conservation – The Bluegrass Bank

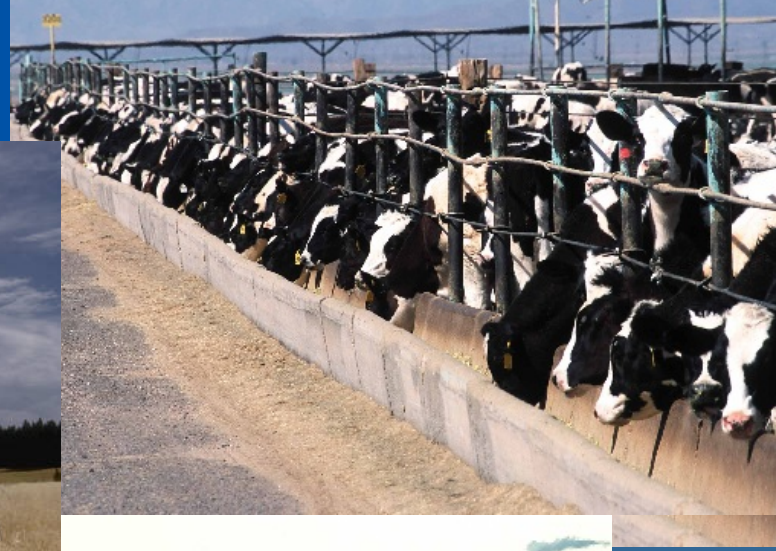


Water Reclamation

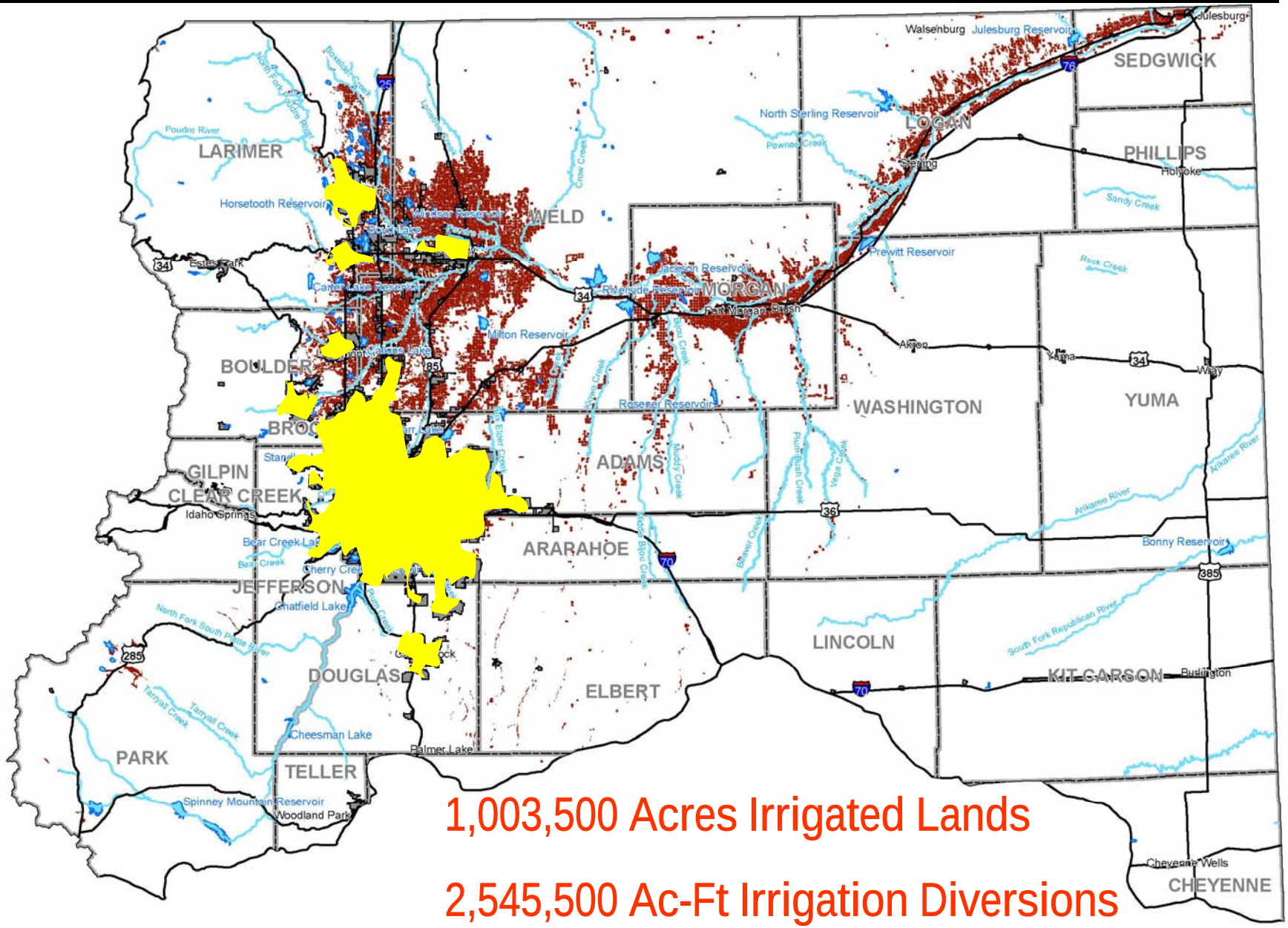




Agricultural Water



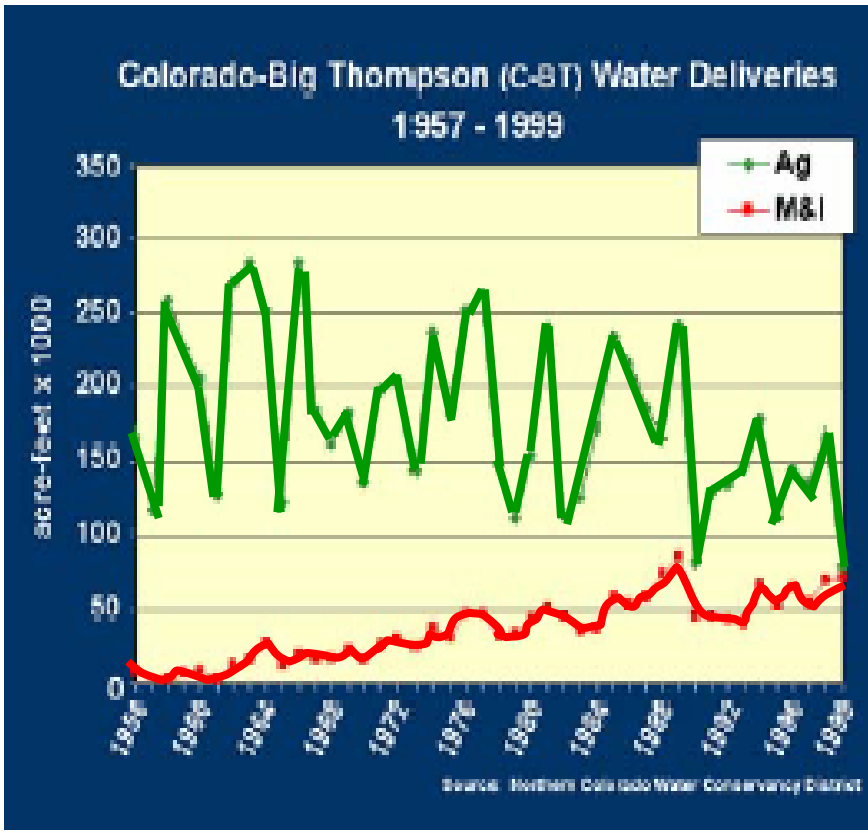
Location of Agricultural Water Uses / Cities

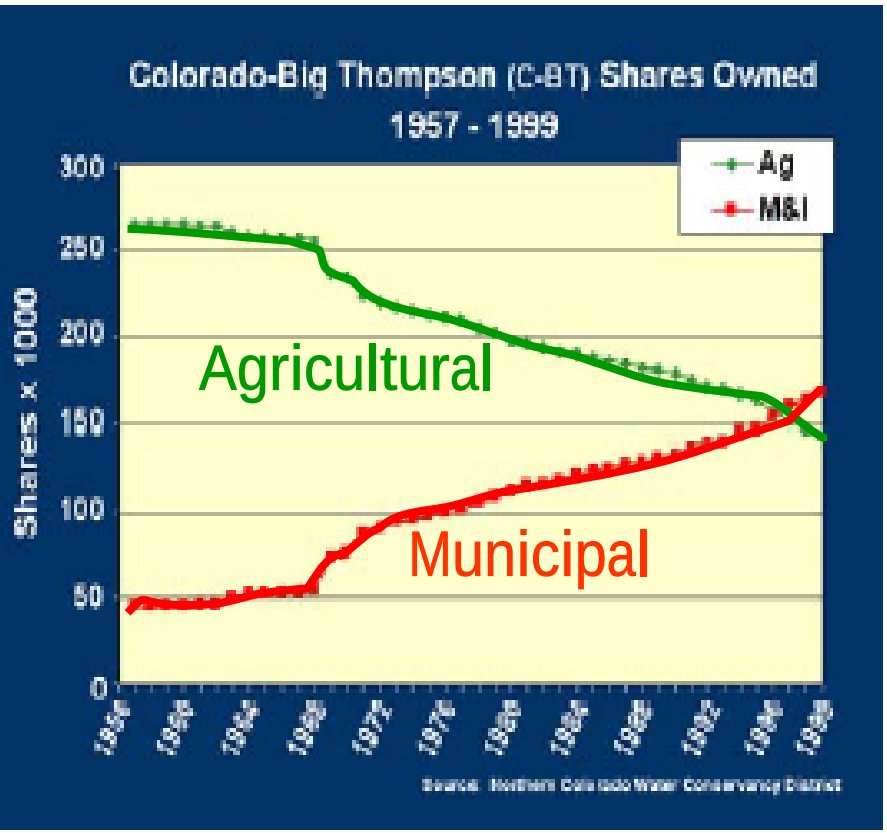


1,003,500 Acres Irrigated Lands

2,545,500 Ac-Ft Irrigation Diversions

CBT Shares Are Being Converted From Agricultural to Municipal Uses





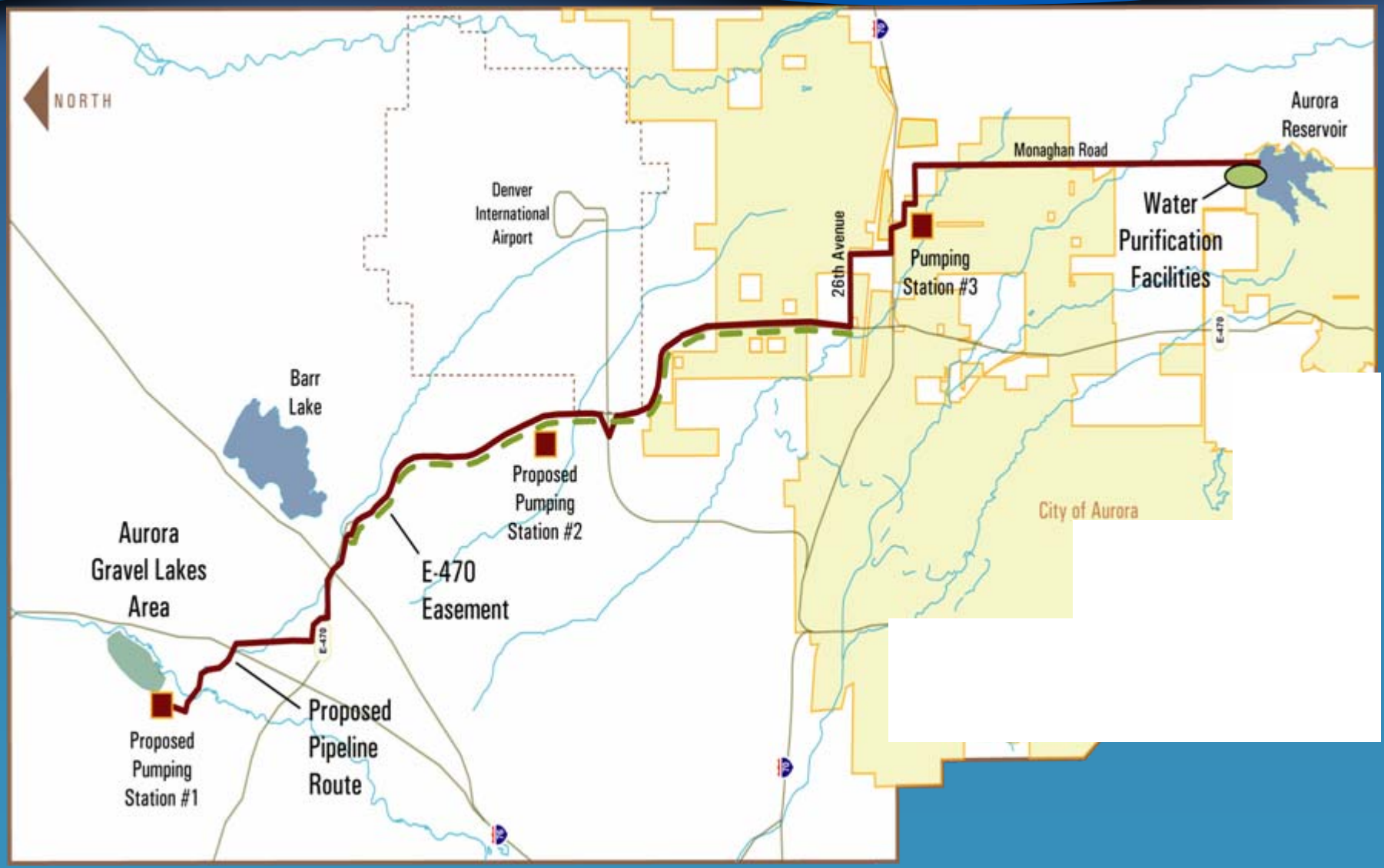
Agriculture-Municipal Interface

Aurora's Farm-City Programs

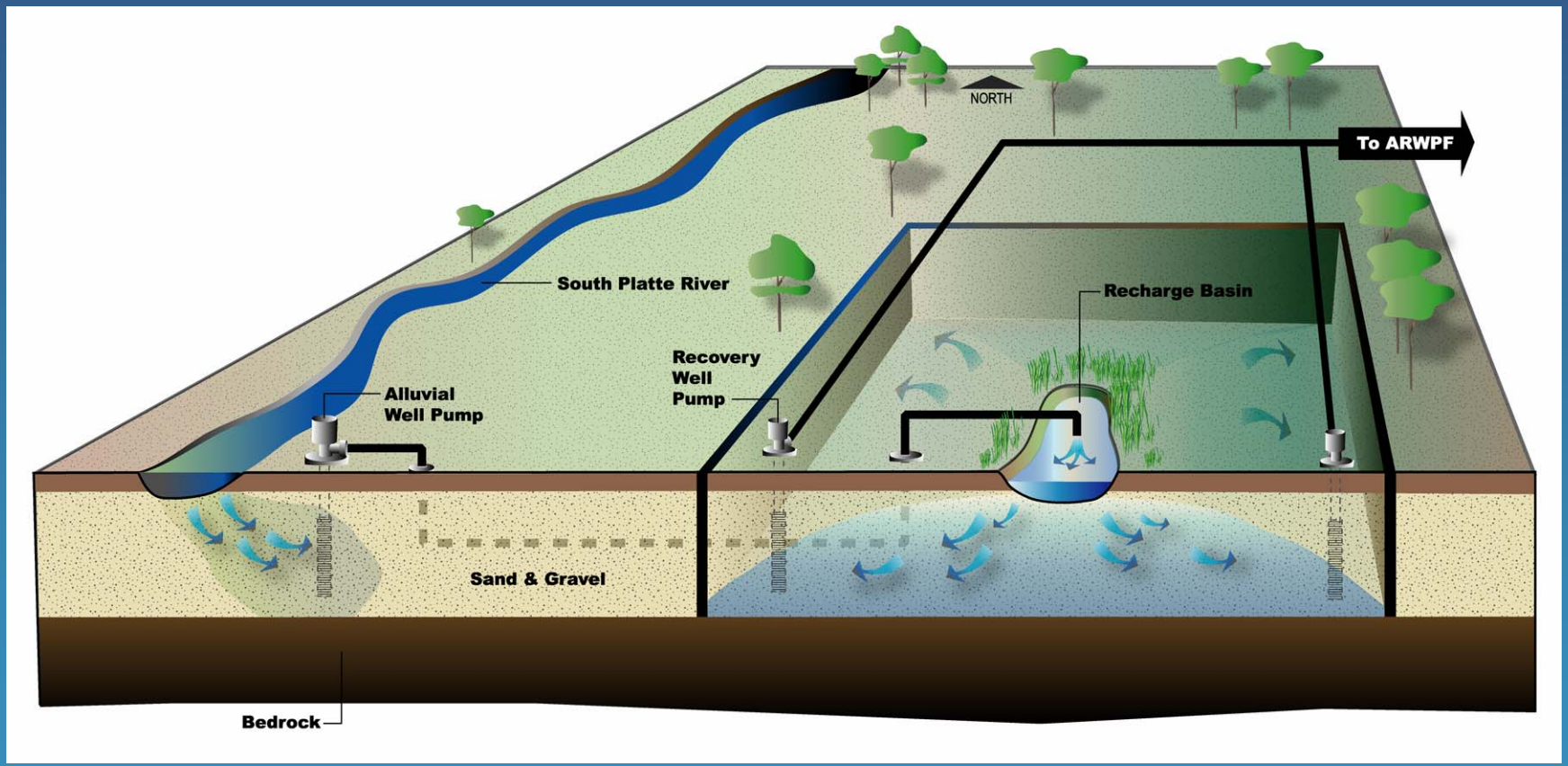
- Purchase of Rocky Ford Ditch with re-vegetation, School Payments, Economic Development
- Lake County Transfer/ Open Space Initiative
- High Line Canal Interruptible Supply Program
- Rocky Ford II Drip Irrigation Program
- Lower South Platte Augmentation Water Program/ Integrated Operations –HB06-1124
- Lower South Platte Lease Back program

2004 Success Story – Drip Irrigation

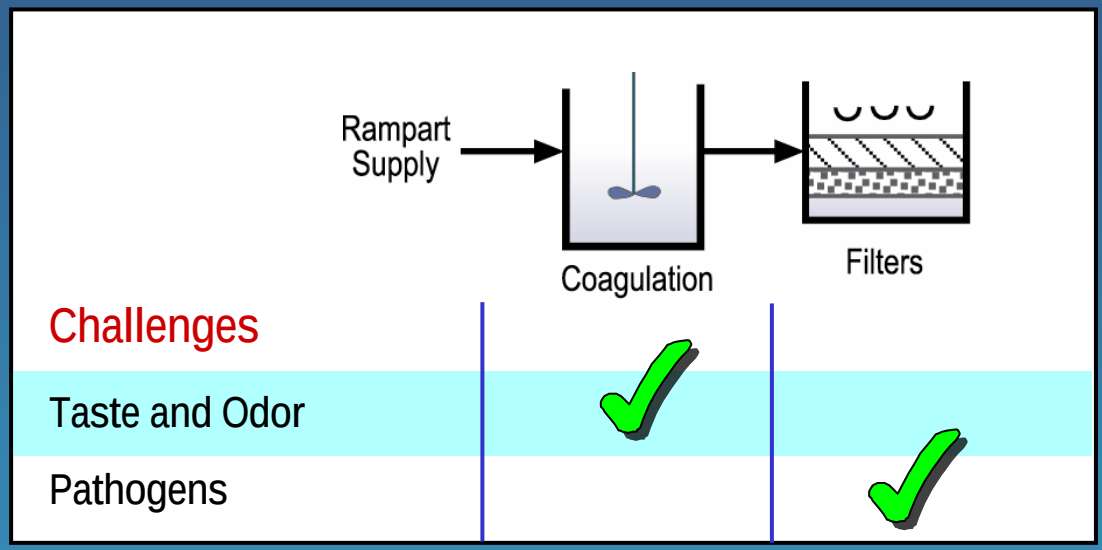
Aurora's Prairie Waters Project



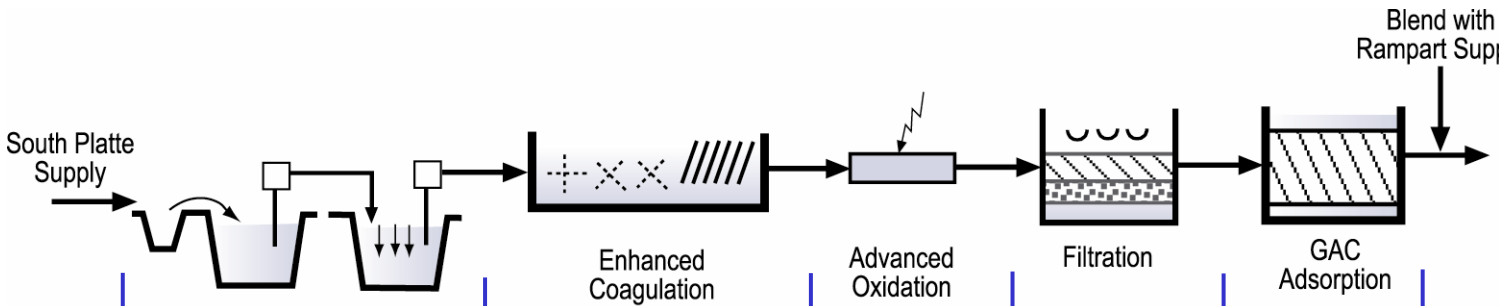
Sustainable Treatment – River Bank Filtration and Aquifer Recharge and Recovery



Aurora's Existing Purification Facilities Developed for Mountain Water Resources



Water Purification Processes Required To Provide Excellent Water Quality and Public Acceptance



Challenges	Natural Pre-Treatment	Enhanced Coagulation	Advanced Oxidation	Filtration	GAC Adsorption	Blend with Rampart Supply
Taste and Odor	✓	✓	✓		✓	
Color	✓	✓	✓			
TDS						✓
Nitrate	✓					
Pathogens	✓		✓	✓		
Organics	✓	✓			✓	
Micro-Pollutants	✓		✓		✓	

What Does This Mean At Community Level?

- Can we continue to plan and construct communities in the same manner?
- No State or Federal funds available except as loans
- Projects will be capitalized at municipal level using water sales and tap fees. Other sources (State sales tax acceptable for public uses/ benefits of projects?)
- Era of cheap water and taps is passing for suburbs but how much can the customer/ market absorb? Are cities ready for $5.00 to $10.00 per 1000 gallon water and tap fees that could exceed $20,000 or $30,000 per household?
- Are City water users willing to accept frequent water restrictions for lawn watering?
- Is a reliable water supply necessary to sell a mortgage?
- How can local governments/ water districts effectively develop reliable water sources in today's regulatory/ public policy setting when saying "no" is the default
- Are regional water systems politically acceptable?

What Does It Take To Get Traction?

What is Colorado's and The New West's Future?